

CLAIMS

What is claimed is:

1. A method of controlling a direct current motor driving an object, the method comprising:

if the object does not reach a target position, detecting from a predetermined velocity trajectory a reference velocity corresponding to a point of time when a first interrupt occurs, obtaining a position of the object, calculating a current velocity of the object updated whenever a second interrupt occurs, and calculating a difference between the reference velocity and the current velocity;

determining whether the difference is greater than a velocity error limit value; and

if determined that the difference is greater than the velocity error limit value, informing a user of an error occurrence.

2. The method of claim 1, wherein detecting the reference velocity, obtaining the object position, and calculating the current velocity and the difference, comprises:

initializing the position of the object;

determining whether the object reaches the target position;

if determined that the object does not reach the target position, determining whether the first interrupt occurs; and

if determined that the first interrupt occurs, calculating the reference velocity, the position of the object, the current velocity, and the difference.

3. The method of claim 1, wherein the second interrupt occurs more frequently than the first interrupt.

4. The method of claim 1, further comprising:

if determined that the difference is greater than the velocity error limit value, increasing a velocity error count value;

if determined that the difference is not greater than the velocity error limit value, resetting the velocity error count value;

after the increasing or the resetting of the velocity error count value, determining whether the velocity error count value is greater than an error count limit value; and

if determined that the velocity error count value is greater than the error count limit value, informing the user of the error occurrence.

5. The method of claim 4, further comprising, if determined that the object reaches the target position or the velocity error count value is greater than the error count limit value, stopping the direct current motor.

6. An apparatus controlling a direct current motor driving an object, the apparatus comprising:

a buffer buffering and outputting a position of the object;

a first comparator comparing a position of the object input from the buffer with a target position in response to a first control signal or a first interrupt signal and outputting a comparison result as a second control signal;

a reference velocity detector detecting from a predetermined velocity trajectory a reference velocity corresponding to a point of time when the first interrupt signal occurs, in response to the second control signal and the first interrupt signal;

a position detector detecting the position of the object in response to the second control signal and the first interrupt signal and outputting the detected position of the object to the buffer as an updated position;

a current velocity calculator calculating a current velocity of the object updated whenever a second interrupt signal occurs, in response to the second control signal and the first interrupt signal;

a difference detector calculating and outputting a difference between the reference velocity and the current velocity;

a second comparator comparing the difference with a velocity error limit value and outputting a comparison result as the first control signal; and

an error informer informing a user of an error occurrence in response to the first control signal,

wherein the second interrupt signal occurs more frequently than the first interrupt signal.

7. The apparatus of claim 6, further comprising:
a counter counting or resetting a velocity error count value in response to the first control signal; and
a third comparator comparing the velocity error count value with an error count limit value and outputting a comparison result as a third control signal,
wherein the error informer informs the user of the error occurrence in response to the third control signal.

8. The apparatus of claim 7, further comprising a motor controller that generates a fourth control signal in response to one of the first control signal, the second control signal and the third control signal,
wherein the direct current motor is stopped in response to the fourth control signal.

9. The method of claim 1, further comprising, adjusting the velocity error limit value to adjust a sensitivity of the error detection.

10. The method of claim 4, further comprising, adjusting the error count limit value to adjust a sensitivity of the error detection.

11. An inkjet printer, comprising:
a direct current (DC) motor driving a carrier system; and
a DC motor controller controlling the DC motor and detecting a DC motor driving velocity error according to the carrier system velocity and position sensitiveness.

12. The inkjet printer of claim 11, wherein the DC motor driving velocity error is detected by checking the carrier system velocity at timed interrupt occurrences and based upon a target velocity at the timed interrupt occurrences.

13. A controller controlling a direct current motor driving an object, comprising:
an object velocity checker determining, until the object reaches a target position and upon timed interrupt occurrences, a target velocity corresponding to a point of time at the timed interrupt occurrences, obtaining a position of the object, calculating a current velocity of the object, and calculating a difference between the target velocity and the current velocity;

a velocity error detector determining if the calculated difference is greater than a velocity error limit value as a velocity error difference; and

an error informer informing a user of an object velocity error, if the velocity error difference is greater than the error limit value and stopping the motor.

14. The controller of claim 13, wherein the velocity error detector comprises an adjuster adjusting the velocity error limit value to control a sensitivity of the error detection.

15. An apparatus controlling a direct current motor driving an object, the apparatus comprising:

a reference velocity detector detecting from a predetermined velocity trajectory a reference velocity of the object corresponding to a point of time when a first interrupt signal occurs;

a current velocity calculator calculating a current velocity of the object in response to the first interrupt signal;

a difference detector calculating a difference between the reference velocity and the current velocity;

a comparator comparing the velocity difference with a velocity error limit value as a velocity error difference; and

an error informer informing a user of an error occurrence depending upon the velocity error difference.

16. The apparatus of claim 15, wherein the current velocity of the object is updated upon occurrence of a second interrupt signal more frequently than the first interrupt signal.